

## CLAIMS

1. A die bonding apparatus for bonding an integrated circuit (IC) die onto a lead frame, the apparatus comprising:

a first camera for capturing a lead frame image corresponding to the lead frame;

a second camera for capturing a die image corresponding to the IC die; and

an automatic image matching system for comparing the captured lead frame image with a stored lead frame image, for comparing the captured die image with a stored die image, and for generating an error signal if one of the second lead frame image and the second die image fails to match the first lead frame image and the first die image, respectively.

2. The die bonding apparatus according to Claim 1, wherein the auto matching vision system comprises a vision board for digitizing images received from the first and second cameras.

3. The die bonding apparatus according to Claim 2, wherein the auto matching vision system further comprises a computer for storing the stored lead frame image and the stored die image, and for comparing the stored lead frame image and the stored die image with the captured lead frame image and the captured die image, respectively.

4. The die bonding apparatus according to Claim 3, wherein the auto matching vision system further comprises a signal controller for transmitting an error signal to the die bonding apparatus in response to a control signal

generated by the computer when one of the second lead frame image and the second die image fails to match the first lead frame image and the first die image, respectively.

5. A method for operating a die bonding apparatus, the method comprising:

storing a first lead frame image and a first die image;

capturing a second lead frame image and a second die image corresponding to a lead frame and an IC die received by the die bonding apparatus;

comparing the second lead frame image with the first lead frame image and the second die image with the first die image; and

terminating operation of the die bonding apparatus if one of the second lead frame image and the second die image fails to match the first lead frame image and the first die image, respectively.

6. The method according to Claim 5, further comprising detecting a lead frame received by the die bonding apparatus.

7. The method according to Claim 6, further comprising detecting a die received by the die bonding apparatus.

8. A method for bonding an integrated circuit (IC) die onto a lead frame, the method comprising:

storing a first lead frame image and a first die image;

capturing a second lead frame image and a second die image corresponding to the lead frame and the IC die to be bonded;

comparing the second lead frame image with the first lead frame image and the second die image with the first die image; and

bonding the IC die onto the lead frame only if the second lead frame image and the second die image match the first lead frame image and the first die image, respectively.